



November 7, 2007

Marcine Elvin Crane, MS, CPA  
Chief, Office of Health Plan Administration  
400 Q Street – 2<sup>nd</sup> Floor  
Sacramento, CA 95814

Subject: Actuarial Valuation of the CalPERS Long Term Care Program  
as of June 30, 2007 - Revised

Dear Mr. Crane:

I have attached a revised report summarizing the results of our actuarial valuation of the CalPERS Long Term Care Program as of June 30, 2007. Please note that this report is not meant to serve as complete actuarial documentation. Much additional relevant data/information is available for distribution and can be provided upon request.

This report is organized as follows:

- The first section presents an executive summary of the valuation results and recommendations.
- The following sections present:
  - Scope and background information.
  - The approach used for this valuation.
  - A discussion of revised assumptions.
  - Information regarding model construction and fit.
  - Projection results – base case and sensitivity testing.
  - A reconciliation of base case valuation results.
  - Additional perspectives on projection results.
  - Estimated impact of corrective actions implemented.
  - Recommendations.
  - Caveats and/or limitations applicable to this valuation.

Additional details are provided in various attachments as described in the report.

#### **Acknowledgments**

I would like to acknowledge the efforts of my staff members, who assisted me with nearly every aspect of this project:



Constance D. Rogers, ASA, MAAA  
Max A. Klicker, ASA, MAAA  
Jevon Brenneman

**Conclusion**

Please feel free to contact me directly to discuss anything presented in this report at (317)575-7672 or via e-mail at [kvolkmar@uhasinc.com](mailto:kvolkmar@uhasinc.com).

Sincerely,

A handwritten signature in black ink, appearing to read 'Karl G. Volkmar', with a large, stylized flourish at the end.

Karl G. Volkmar, FSA, MAAA, FCA  
Principal & Consulting Actuary

**Actuarial Valuation of the  
California Public Employees Retirement System  
Long Term Care Program**

**As of 6/30/07**

**Revised**

Prepared by:

Karl G. Volkmar, FSA, MAAA, FCA  
Principal & Consulting Actuary  
United Health Actuarial Services, Inc.

November 7, 2007

### **Executive Summary**

United Health Actuarial Services, Inc. (UHAS) was retained by the California Public Employee Retirement System (CalPERS) Long Term Care (LTC) Program to perform an actuarial valuation of CalPERS' LTC operations as of June 30, 2007 along with supporting analyses. Specifically, our assignment was to develop a projection of future cash flows and to evaluate the adequacy of current assets and premium levels based on those cash flows.

We utilized our work on the 2006 annual valuation as the starting point for the development of the 2007 valuation.

Briefly, the 2007 valuation process could be summarized as follows:

- We reviewed assumptions from the 2006 valuation.
- We updated the detailed morbidity study developed for the 2006 valuation using actual program experience through 6/30/07.
- We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with Long Term Care Group's (LTCG's) manual ultimate claim costs.
- We validated resulting claim costs to historical incurred claims experience using our established validation process.
- We input final assumptions into our model and ran the model for all scenarios to be tested.

Please note that while we reviewed all valuation assumptions, our primary focus again this year was on assumed morbidity. This will be discussed in more detail later in this report.

Given all of the above, we developed projected values using a seriatim projection model and we used those projected values along with current program financial information to determine the financial standing of the program.

### **Projection Results**

In summary, given the range of scenario testing presented in this report, projection results varied widely. Projection results are very sensitive to the underlying assumptions used.

Significant corrective actions were adopted by the CalPERS Board last year, the majority of which were implemented during 2007. Given that, as a demonstration of the projected impact these actions could have on the financial status of the program, the results of all projection scenarios have been presented both without and with the implemented rate increases.

The results of the projection scenario A(1), the "base case" scenario, are summarized in the table below.

| <b>Projection Scenario A(1)</b><br><b>Summary of Projected Values</b><br><b>Inforce Business as of 6/30/07</b><br><b>Present Values @ 7.79% (\$ in Millions)</b> |  |   |
|--|--|---|
| <b>Component</b>   | <b>Present Value<br/>w/out Rate<br/>Increase</b> | <b>Present Value w/<br/>Rate Increase</b> |
| 1. Present Value of Future Benefits  | \$4,659.7  | \$4,659.7                                 |
| 2. Present Value of Future Expenses  | \$290.3  | \$290.3                                   |
| 3. Present Value of Future Premiums (PVFP)   | \$1,919.1  | \$2,594.0                                 |
| 4. Valuation Liabilities (= 3 – 1 – 2)   | (\$3,030.9)                                      | (\$2,356.0)                               |
| 5. Valuation Assets  | \$2,208.3  | \$2,208.3                                 |
| 6. Valuation Surplus/(Deficit) (= 5 + 4)   | (\$822.6)  | (\$147.7)                                 |
| 7. Surplus/(Deficit) as a % of PVFP  | (42.86%)   | (5.69%)                                   |

Please note that we expected a “w/ Rate Increase” deficit for this valuation because the overall mitigation approach adopted by the Board assumed that both future new business and additional claims savings would offset the current deficit over time, reducing the required rate increases. As a result, the Board approved rate increases that would not be expected to restore “base case” valuation results to a non-deficit position in the short-term.

Please see the report and attachments for a detailed discussion and summary of projection results.

### **Recommendations**

Consistent with previous recommendations, significant corrective action has been approved and implemented over the last year. Given that and consistent with 2006 recommendations, we recommend the development of a detailed monitoring and reporting system that compares all key emerging experience items against (at least) pricing assumptions and corresponding assumptions from the most recent valuation(s).

### **Conclusion**

Again, all of this will be discussed in more detail later in this report.

## **Report**

This report summarizes the results of our actuarial valuation of the CalPERS Long Term Care Program as of June 30, 2007. Please note that this report is not meant to serve as complete actuarial documentation for this valuation. Additional data/information can be provided upon request.

## **Scope and Background Information**

United Health Actuarial Services, Inc. (UHAS) was retained by the California Public Employee Retirement System (CalPERS) Long Term Care (LTC) Program to perform an actuarial valuation of CalPERS' LTC operations as of June 30, 2007 along with supporting analyses. Specifically, our assignment was to develop a projection of future cash flows and to evaluate the adequacy of current assets and premium levels based on those cash flows.

We utilized our work on the 2006 annual valuation as the starting point for the development of the 2007 valuation.

## **Valuation Approach**

Briefly, the 2006 valuation process could be summarized as follows:

- We reviewed assumptions from the 2006 valuation.
- We updated the detailed morbidity study developed for the 2006 valuation using actual program experience through 6/30/07.
- We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with Long Term Care Group's (LTCG's) manual ultimate claim costs.
- We validated resulting claim costs to historical incurred claims experience using our established validation process.
- We input final assumptions into our model and ran the model for all scenarios to be tested.

Each of these steps is reiterated and discussed in more detail below.

- *We reviewed assumptions from the 2006 valuation.*

We reviewed all of the assumptions used in the 2006 valuation. A discussion of revised assumptions is included later in this report.

- *We updated the detailed morbidity study developed for the 2006 valuation using actual program experience through 6/30/07.*

Since 2004, we have developed morbidity studies using actual program experience. Our studies have included the following:

- Incidence and continuance analyses;
- Ultimate claim cost analyses; and,

- Selection factor analyses.

We updated all of these studies to include data through 6/30/07.

For the benefit designs modeled, we performed detailed claim cost analyses and then adjusted assumed claim costs based on the results of those analyses.

We used the following approach with respect to our ultimate claim cost analyses:

- Using source coverage and claims data files from LTCG and given relevant direction from LTCG actuarial personnel regarding the interpretation and processing of that data, we developed complete inception-to-date exposure and claims databases for the program.
- We added provision for claim reserves and incurred but not reported (IBNR) claim liabilities. The former were added on a seriatim basis, while the latter were allocated across inforce policies not on claim as of the valuation date based on disabled life reserves (to the plan level) and annualized premiums (to the individual policy level).
- We generated incurred claim summaries by attained-age band and duration and then used those to develop “gross-up factors” that were used to adjust incurred claims for earlier durations to estimated ultimate levels. While these gross-up factors were developed from actual experience, industry selection wear-off patterns were also considered when determining the lengths of the selection periods as well as the ultimate selection factors for each issue-age band.

Given that the factors we developed this year were consistent with those utilized in 2006, we utilized the 2006 gross-up factors again to minimize variability.

- All incurred claims were grossed up as indicated above.
- We developed a summary of estimated ultimate incurred claim costs by attained-age band and gender for the benefit designs we explicitly modeled.

We used the resulting estimated ultimate claim costs as described in the subsection immediately below.

- *We developed revised ultimate claim cost assumptions by credibility-weighting adjusted actual program claim costs with LTCG’s manual ultimate claim costs.*

The estimated actual ultimate male and female claim costs referenced above for pivotal ages 47, 57, 62, 67, 72, 77, 82 and 87 were adjusted such that they were

on the same basis as LTCG manual ultimate claim costs. The resulting adjusted claim costs were credibility-weighted with the corresponding LTCG manual ultimate claim costs to develop the assumed ultimate claim costs.

As a reminder, we chose to utilize LTCG's manual morbidity assumptions as a basis for assumed valuation morbidity as opposed to our own LTC claims database for the following reasons:

- Their manual better reflected experience for the LTC insurance industry as a whole;
- It required relatively few adjustments before it could be utilized for this purpose; and,
- Relevant values had already been developed for prior valuation work and were readily available.

The credibility standards we applied were taken from the results of an analysis dated 5/28/03 performed by the Credibility Subgroup of the American Academy of Actuaries Long-Term Care Reserving Work Group. For credibility-weighting purposes, we considered "full credibility" to mean that there would be a 90% probability that estimates would fall within 10% of expected claim costs, and we used appropriate program data to develop the minimum claim count needed for each cell in order to ascribe full credibility to the actual experience associated with that cell. We ascribed partial credibility for a given cell based on the relationship between actual claim counts and "full credibility" claim counts; however, any actual claim volume that resulted in less than a 20% credibility-weighting to actual experience was ignored entirely.

The new assumed ultimate claim costs between the pivotal ages were developed using standard interpolation methods. Corresponding claim costs for attained-ages 37 and younger and 97 and older were set at LTCG's manual ultimate claim costs. Claim costs between 37 and 47 and between 87 and 97 were developed using standard interpolation methods.

- *We validated resulting claim costs to historical incurred claims experience using our established validation process.*

In order to validate the credibility-weighted claim costs referenced above, we calculated historical benefit-adjusted exposures by attained-age band and duration for all benefit designs modeled, and input our proposed morbidity assumptions (i.e., assumed ultimate claim costs, selection factors, etc.) to assess how effectively they reproduced historical experience. In our opinion, the assumptions we used reasonably reproduce historical experience.

- *We input assumptions into our model and ran the model for all scenarios to be tested.*



Results of the “base case” scenario to be used for financial reporting purposes along with results from other scenarios are discussed later in this report.

A summary of relevant valuation assumptions is included as Attachment C.

#### **Discussion of Revised Assumptions**

This section presents data/information relating to assumption revisions made to the 2007 valuation as compared to the 2006 valuation.

#### **Discussion of 2006 Valuation Results**

Please see Attachment D for a summary of actual-to-projected values for the period 7/06-6/07.

The actual fund balance as of 6/30/07 compares favorably to the corresponding projected fund balance from the 2006 valuation. The primary source of this positive result is actual investment income, which is nearly double the corresponding projected value from the 2006 valuation. Actual claims and expenses also deviated from projected values, and the underlying assumptions have been updated to reflect these differences.

#### **Morbidity**

Our primary assumption revision(s) from last year’s valuation again relate to assumed morbidity. These assumptions were revised as follows:

- Ultimate claim costs were revised as described in the section above. Please note that while actual program claim costs for many cells have decreased or remained stable, certain older age claim costs have increased. That, when combined with the fact that the statistical credibility associated with those claim costs has generally increased, has led to a further deterioration of projection results.
- Claim payment distributions (i.e., assumed payment patterns associated with the assumed claim costs) were revised to reflect emerging experience and were developed to be consistent with current liability/reserve levels.
- Adjustments to reflect reduced exposures due to individuals already on claim were revised to be consistent with assumed ultimate claim costs.

Please note that if experience continues to emerge in a manner consistent with how experience has emerged to date, valuation results could further deteriorate as the credibility of that experience increases.

#### **Voluntary Lapsation**

We performed our own detailed analysis of actual program lapse experience and revised assumed lapsation as we deemed appropriate. Actual voluntary lapse rates for the CalPERS LTC program continue to be much lower than those experienced in the LTC insurance industry as a whole.

Please note that while assumed lapsation did not change significantly, projection results are very sensitive to changes in that assumption so the revision did have an impact on projection results. Please see the “Base Case Reconciliation...” section for more details.

#### Expenses

Assumed expenses were increased to reflect actual changes in expense patterns. The aggregate increase was large enough to impact valuation results.

#### Estimated Impact of Rate Increases

As indicated previously, significant corrective actions were adopted by the CalPERS Board last year, the majority of which were implemented during 2007. Given that, as a demonstration of the projected impact these actions could have on the financial status of the program, the results of all projection scenarios have been presented both without and with the implemented rate increases.

Aggregate rate increases for all non-Partnership policies were assumed to be implemented effective 7/1/07 while the corresponding rate increases for all Partnership policies were assumed to be implemented effective 7/1/08.

Please note that we expected a “w/ Rate Increase” deficit for this valuation because the overall mitigation approach adopted by the Board assumed that both future new business and additional claims savings would offset the current deficit over time, reducing the required rate increases. As a result, the Board approved rate increases that would not be expected to restore “base case” valuation results to a non-deficit position in the short-term.

#### Other Assumptions

All other assumptions are substantially similar to those utilized in the 2006 valuation.

#### Model Construction and Fit

Given everything presented above, we developed projected values using a proprietary seriatim projection model.

We created a projection model such that projected lives inforce, premiums collected and claims incurred were all consistent with recent historical values. With respect to incurred claims, we modified input assumptions until the model was able to approximately replicate past experience. Assumptions are documented in more detail in Attachment C.

#### Projection Results – Base Case & Sensitivity Testing

The “base case” projection results are summarized in Attachment A(1).

The following outlines the assumption changes (as compared to the base case scenario) associated with the projection results summarized in Attachments A(2) through A(9):

- Attachment A(2) - Investment/discount rate changed to 8.50%.
- Attachment A(3) – LTC base policy claims reduced by 10%.

- Attachment A(4) - Model expenses reduced by 20%.
- Attachment A(5) - Investment/discount rate changed to 8.50%, LTC base policy claims reduced by 10%, and model expenses reduced by 20%.
- Attachment A(6) - Investment/discount rate changed to 7.00%.
- Attachment A(7) - LTC base policy claims increased by 10%.
- Attachment A(8) - Model expenses increased by 20%.
- Attachment A(9) - Investment/discount rate changed to 7.00%, LTC base policy claims increased by 10%, and model expenses increased by 20%.

A brief summary of projection results is included below:

| Scenario | (Deficit)/<br>Surplus<br>w/out Rate<br>Increase | (Deficit)/<br>Surplus<br>w/ Rate<br>Increase | LTC<br>Claim<br>Adj. | Model<br>Expense Adj. | Investment<br>Discount Rate |
|----------|---|--|----------------------|-----------------------|-----------------------------|
| A(1)     | (42.86%)  | (5.69%)                                      | 0%                   | 0%                    | 7.79%                       |
| A(2)     | (20.26%)  | 10.94%                                       | 0%                   | 0%                    | 8.50%                       |
| A(3)     | (18.80%)  | 12.11%                                       | -10%                 | 0%                    | 7.79%                       |
| A(4)     | (40.20%)  | (3.72%)                                      | 0%                   | -20%                  | 7.79%                       |
| A(5)     | 4.68%   | 29.41%                                       | -10%                 | -20%                  | 8.50%                       |
| A(6)     | (70.94%)  | (26.31%)                                     | 0%                   | 0%                    | 7.00%                       |
| A(7)     | (66.92%)  | (23.49%)                                     | +10%                 | 0%                    | 7.79%                       |
| A(8)     | (45.53%)  | (7.76%)                                      | 0%                   | +20%                  | 7.79%                       |
| A(9)     | (99.94%)  | (47.74%)                                     | +10%                 | +20%                  | 7.00%                       |

As you can see, the program's estimated financial standing is highly sensitive to the underlying assumptions.

In addition to the sensitivity testing summarized above, we performed cash flow testing on the base case scenario (i.e., starting discount rate of 7.79%) using the following interest rate scenarios:

- Scenario #1: Level with no deviation.
- Scenario #2: Uniformly increasing over ten years at one-half percent per year and then level.
- Scenario #3: Uniformly increasing over five years at one percent per year, and then uniformly decreasing over five years at one percent per year to the original level at the end of ten years, and then level.
- Scenario #4: An immediate increase of three percent and then level.
- Scenario #5: Uniformly decreasing over ten years at one-half percent per year and then level.
- Scenario #6: Uniformly decreasing over five years at one percent per year, and then uniformly increasing over five years at one percent per year to the original level at the end of ten years, and then level.
- Scenario #7: An immediate decrease of three percent and then level.

Summaries of these cash flow testing results are included as Attachments B(1)-B(7). A brief summary of those results is included below:

| Scenario | (Deficit)/<br>Surplus<br>w/out Rate<br>Increase | (Deficit)/<br>Surplus w/<br>Rate<br>Increase | LTC<br>Claim<br>Adj. | Model<br>Expense Adj. | Investment<br>Discount Rate |
|----------|---|--|----------------------|-----------------------|-----------------------------|
| B(1)     | (42.86%)  | (5.69%)                                      | 0%                   | 0%                    | Scenario #1                 |
| B(2)     | 49.29%  | 62.32%                                       | 0%                   | 0%                    | Scenario #2                 |
| B(3)     | (9.47%)   | 18.88%                                       | 0%                   | 0%                    | Scenario #3                 |
| B(4)     | 39.75%  | 55.27%                                       | 0%                   | 0%                    | Scenario #4                 |
| B(5)     | (260.86%)                                       | (164.63%)                                    | 0%                   | 0%                    | Scenario #5                 |
| B(6)     | (77.43%)  | (31.05%)                                     | 0%                   | 0%                    | Scenario #6                 |
| B(7)     | (171.63%)                                       | (99.87%)                                     | 0%                   | 0%                    | Scenario #7                 |

As you can see, two of the seven “w/out Rate Increase” scenarios and three of the seven “w/ Rate Increase” scenarios resulted in a positive projected surplus position.

In the auditor’s review of the 2006 valuation, they suggested that, in addition to the above, we test the following:

- Scenarios that vary the assumed termination rates (i.e., voluntary lapsation and/or mortality) from those utilized in the “base case” scenario; and,
- Interest/investment rate scenarios utilizing a stochastic modeling process.

The results of the testing referenced in the first item above could be summarized as follows:

| Scenario | (Deficit)/<br>Surplus w/out<br>Rate Increase | (Deficit)/<br>Surplus w/<br>Rate Increase | Assumed Termination<br>Adjustment |
|----------|--|---|-----------------------------------|
| G(1)     | (42.86%)                                     | (5.69%)                                   | None                              |
| G(2)     | (36.06%)                                     | (0.69%)                                   | +0.25% for All Years              |
| G(3)     | (49.86%)                                     | (10.78%)                                  | -0.25% for All Years              |

Please see Attachment G for additional detail.

Regarding the auditor’s second suggestion, we have been working with CalPERS’ internal actuarial staff to develop an approach to this testing that leverages prior CalPERS’ efforts in this area and that optimizes cost/resource utilization. I expect an agreed-upon approach to be developed and implemented on a test-basis within the next six months and to be fully implemented in time for the 2008 valuation.

Three items to note when reviewing these (and future) valuation projection results:

- Please remember that the results are very sensitive to the assumptions used.
- Along the same line, please remember that assumption changes produce leveraged results. In other words, if an assumption is revised (for example) such that the initial pricing for a product should have been 10% greater, that would increase the projected deficit as of 6/30/07 by approximately 20%.
- All of these results assume that the target is a 0% deficit (i.e., break-even). If a positive target surplus objective for inforce business is adopted for this program, projected surplus/deficit results would need to be adjusted accordingly.

We did not attempt to include projected 2007 and later new business in this valuation – only business inforce as of 6/30/07 was included. Please note that new business rates for 2007 are consistent with those utilized for 2006, which were developed based on results from the 2005 valuation and supporting analyses and to achieve specific target surplus contribution objectives.

#### **Base Case Reconciliation of Valuation Results - 2007 to 2006**

The 2006 valuation result for the “base case” scenario was a present value projection deficit of approximately \$753.5 million (or 37% of the present value of future premiums). The corresponding 2007 valuation result before the implemented rate increases was a present value projection deficit of approximately \$822.6 million (or 43% of the present value of future premiums).

The reconciliation of these deficits (in millions) can be broken down as follows:

|   |           |
|---|-----------|
| 2006 aggregate present-value deficit as of 6/30/06: | (\$753.5) |
| Adjusted to 6/30/07 (i.e., lost time):              | (\$811.8) |
|   |           |
| Favorable FY 2007 experience (esp. investments):    | +\$148.9  |
| Decrease in corresponding projected premium:        | -\$36.5   |
| Increase in corresponding projected claims:         | -\$100.9  |
| Increase in corresponding projected expenses:       | -\$22.3   |
|   |           |
| 2007 aggregate present-value deficit as of 6/30/07: | (\$822.6) |

The sources of the changes summarized in the reconciliation above are as follows:

|   |      |
|---|------|
| 2006 aggregate present-value deficit as of 6/30/06:         | -37% |
| Adjusted to 6/30/07 (i.e., lost time):                      | -5%  |
|   |      |
| Favorable FY 2007 experience (esp. investments):            | +8%  |
| Revised starting inforce:                                   | +1%  |
| Revised assumed lapsation:                                  | +2%  |
| Revised assumed expenses:                                   | -2%  |
| Revised morbidity and mortality claims-related assumptions: | -10% |
| 2007 aggregate present-value deficit as of 6/30/07:         | -43% |

In summary, the 2007 valuation deficit results before the implemented rate increases are relatively consistent with aggregate 2006 valuation results adjusted to 6/30/07. Essentially, the favorable FY 2007 experience was offset by changes to both claims- and expense-related assumptions.

A discussion of assumption revisions is included in an earlier section of this report.

#### **Additional Perspectives on Projection Results**

The purpose of this section is to provide additional perspective and data/information relating to the 2007 valuation results. The following items, in no particular order, are presented with this purpose in mind:

- Attachment H is identical to Attachments A(1), B(1) and G(1) – the “base case” scenario. In this scenario, as indicated earlier in this report, adjusted actual program claim costs were credibility-weighted with corresponding LTCG manual ultimate claim costs to develop the assumed ultimate claim costs. The credibility standards we applied assume that “full credibility” is defined such that there is a 90% probability that estimates fall within 10% of expected claim costs. The purpose of setting the credibility standards as defined here was to attribute as much credibility to actual program experience as we could reasonably justify given that we thought actual experience might differ significantly from industry manual experience.

We reviewed two alternative projection scenarios using differing credibility standards:

- Attachment I summarizes projection results assuming that no credibility can be attributed to actual program experience. I have provided this summary in response to discussions regarding the appropriateness of the estimates of actual program experience we are using in our analyses.

Essentially, this attachment summarizes results assuming that this program experiences what would be considered industry-average experience. As you can see, the projected surplus/(deficit) in this scenario is (14.46%)

before the implemented rate increases and +15.25% after the implemented rate increases.

Given that assumption changes produce leveraged results as described earlier, the difference between the base case projected deficit and the projected deficit shown immediately above indicate that, on average, assumed morbidity is approximately 14% greater than manual (i.e., LTC industry) morbidity.

- Attachment J summarizes projection results given that, for credibility-weighting purposes, “full credibility” means there would be a 90% probability that estimates would fall within 5% (vs. 10%) of expected claim costs. This would be a more standard definition of “full credibility” within the actuarial community, but would put much more weight on manual experience than we have used in our valuation.

As you would expect, the projection results for this scenario fall between those summarized in Attachments G and H. The projected surplus/(deficit) in this scenario is (26.75%) before the implemented rate increases and +6.17% after the implemented rate increases.

The choice of a credibility standard is an issue of actuarial judgment, and we are comfortable with the approach we have taken; however, we wanted to clearly communicate this concept and alternatives to help everyone understand the approach taken and the impact on results, and so that everyone can more accurately interpret valuation results.

- Attachment K summarizes a variety of inception-to-date statistics from the program. All claims-related statistics are increasing year after year, and we would expect this trend to continue given the increasing age of the inforce block of business. As a result, if you look at the “base case” projection (i.e., Attachments A(1), B(1), G(1) or H), projected cash flows excluding investment income turn negative in 2012 and continue that way for the remainder of the projection. If this is correct, then clearly the weight of the funding burden into the future will continue to shift toward investment income (i.e., the size of the fund balance and the return(s) achieved on that balance).

We would be happy to elaborate further on any data/information presented in this section or to discuss or present any additional data/information that might help everyone involved to understand and interpret the valuation results.

### **Recommendations**

Consistent with previous recommendations, significant corrective action has been approved and implemented over the last year. Given that and consistent with 2006 recommendations, we recommend the development of a detailed monitoring and

reporting system that compares all key emerging experience items against (at least) pricing assumptions and corresponding assumptions from the most recent valuation(s).

### **Caveats and Limitations**

Please note the following caveats and limitations with respect to this valuation and this report:

- This report has been prepared for the internal use of CalPERS. This report may not be distributed, disclosed, copied, or otherwise furnished to any other party without UHAS's prior consent.
- UHAS has performed the work assigned and prepared this report assuming it will be utilized by persons technically competent in the areas addressed and for the stated purpose. Judgments should be made only after studying this report in its entirety. I am available to explain and/or amplify anything presented in this report, and it is assumed that the user of this report will seek such explanation and/or amplification regarding any matter in question.
- Nothing included in this report is to be used in any filings with any public body such as the Securities and Exchange Commission or State Insurance Departments, without prior written approval from UHAS. Any distribution of this report must be in its entirety.
- We relied on data and information supplied by CalPERS and LTCG data services personnel. We have not audited or independently verified the information furnished to us. Although we have no reason to suspect the integrity of the underlying data, to the extent that the data are materially flawed, the results of our analysis may be materially impacted. The principal items/materials relied upon include:
  - Data extracts from LTCG's administrative system.
  - Direction from LTCG actuarial personnel regarding the appropriate interpretation and processing of the data provided.
  - Information contained in previous valuation reports and associated correspondence and documentation.
  - Financial information for the program from inception through 6/30/07.
  - Information/analyses/summaries/etc. provided by CalPERS staff and LTCG.
- The assumptions underlying the projection results summarized in this document and attachments are based on program data and experience, industry data and experience, discussions with program management, and informed judgment. I believe the assumptions used are reasonable in the aggregate based on the data/information I have and based on my experience; however, future experience will invariably be different from the projected experience, and other



knowledgeable individuals could have different opinions about the appropriateness of any or all of the assumptions used.

- The validity of these projections depends on how actual future experience compares to the valuation assumptions. Assumptions for future morbidity, persistency, expenses, investment return, and other factors are based upon our evaluation of recent experience and anticipated future trends. Actual experience could be more or less favorable. To the extent that actual experience differs from the assumptions underlying this report, actual results will differ from the projection results presented in this report.
- In preparing this report, we have complied with all relevant Actuarial Standards of Practice and any other relevant documents published by the American Academy of Actuaries.
- As indicated previously, this report is not meant to serve as complete actuarial documentation. Much additional relevant data/information is available for distribution and can be provided upon request.

#### **Conclusion**

As indicated previously, please feel free to contact me with any questions at (317)575-7672 or via e-mail at [kvolkmar@uhasinc.com](mailto:kvolkmar@uhasinc.com).